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SOURCE Radio, No 4, 1950TUBE PARAMETERS FOR LOW PLATE VOLTAGE

G. Il'in

The widely used radio tubes of the AC-heater type are intended for a plate voltage of 90, 180, and 250 volts. But, in practice, cases often occur where the radio amateur must apply considerably lower voltage (of the order of 24--26 v) to these tubes. Under proper conditions the tubes will give complete satisfaction even at the above low values.

The table below gives the parameters of the most widely used receiver-amplifier tubes operating on reduced plate voltages.

[See table on following pages]

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BASIC PARAMETERS OF RECEIVER-AMPLIFIER TUBES
OPERATING ON LOW PLATE VOLTAGE

Conventional Designation	Equivalent	Name	Filament		Plate		Screen Grid		Grid Bias	
			v	amp	v	ma	v	ma	v	ma
6B8	6B8	Dup. diode-universal pentode	6.3	0.3	26	1.2	26	0.3	-1.0	
6Zh1Zh	954	HF pentode (acorn)	6.3	0.15	26	0.47	26	0.15	-0.5	
6Zh5P	6AG5	HF pentode	6.3	0.3	26	0.7	26	0.2	-0.5	
6Zh7B	6J7	HF pentode	6.3	0.3	26	0.4	26	0.1	-1.0	
6Zh11B	6SH7	HF pentode	6.3	0.3	26	1.8	26	0.8	-0.5	
6Zh14B	6AC7	HF pentode	6.3	0.45	26	1.0	26	0.3	-0.5	
6K1P	9003	HF variable mu pentode	6.3	0.15	26	1.8	26	0.9	-0.5	
6K7B	6K7	HF variable mu pentode	6.3	0.3	26	1.25	26	0.35	-0.5	
6K12B	6SG7	HF pentode	6.3	0.3	26	1.5	26	0.3	-0.5	
6K17B	6SK7	HF variable mu pentode	6.3	0.3	26	1.8	26	0.55	-0.5	
6A5B	6L7	Heptode-mixer	6.3	0.3	26	0.7	26	0.8	-1.0	
6A15B	6SA7	Heptode-converter	6.3	0.3	26	1.0	26	2.2	-3.0 ⁴	
12N1	12AR7	Twin triode with low amplification factor	12.6	0.15	26	1.3	--	--	-0.5	
6N1P	6J6	Twin triode with average amplification factor	6.3	0.45	26	2.0	--	--	-0.5	
6N8	6SN7	Twin triode with average amplification factor	6.3	0.6	26	1.3	--	--	-0.5	
6N9	6SL7	Twin triode with high amplification factor	6.3	0.3	26	0.2	--	--	-0.5	
12R1B	12SR7	Dupdiode-triode with low amplification factor	12.6	0.15	26	1.6	--	--	-0.5	
6R7B	6G7	Dupdiode-triode with high amplification factor	6.3	0.3	26	0.22	--	--	-0.4	

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Conventional Designation	Equivalent	Name	Filament		Plate		Screen Grid		Grid Bias
			v	amp	v	ma	v	ma	v
6SLZh	955	HF triode (acorn)	6.3	0.15	26	0.45	--	--	-0.3
6S8P	9002	HF triode	6.3	0.15	26	0.75	--	--	-0.5
6Zh4B	6AG7	LF pentode	6.3	0.65	26	2.0	26	0.25	-1.2
6P2	6V6	LF tetrode	6.3	0.45	26	2.5	26	0.25	-1.5
13P1	13PLM	LF tetrode for low voltage supply	13	0.765	26	45.0	26	4.0	0
30P1	30PLM	LF tetrode	26	0.27	26	20.0	26	4.5	0
6K1P	9003	HF pentode in triode connection	6.3	0.15	26	2.0	--	--	-0.5

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Conventional Designation	Equivalent	Name	Transconductance	Amplification Factor	Plate Resistance	Optimum Plate Load R	Power Out-put	Capacitance		
								In	Out	Plate Grid
			ma/v	--	kilohms	kilohms	mw	mmfd	mmfd	mmfd
6B8	6B8	Dup. diode-universal pentode	0.55	--	300	--	--	6.0	9.0	0.005
6Zh1Zh	954	HF pentode (acorn)	0.9	--	700	--	--	3.4	3.0	0.007
6Zh5P	6AG5	HF pentode	1.75	--	700	--	--	6.5	1.8	0.025
6Zh7B	6J7	HF pentode	0.7	--	--	48	5.5	7	12	0.005
6Zh11B	6SH7	HF pentode	1.8	--	250	--	--	8.5	7.0	0.003
6Zh14B	6AC7	HF pentode	3.1	--	160	--	--	11.0	5.0	0.015
6K1P	9003	HF variable mu pentode	1.3	--	180	--	--	3.4	3.0	0.01
6K7B	6K7	HF variable mu pentode	0.8	--	270	--	--	7.0	12	0.005
6K12B	6SG7	HF pentode	1.5	--	200	--	--	8.5	7.0	0.003
6K17B	6SK7	HF variable mu pentode	1.2	--	150	--	--	6.0	7.0	0.003
6A5B	6L7	Heptode-mixer	0.23 ¹	--	--	--	--	7.5	11	0.001
6A15B	6SA7	Heptode-converter	0.23 ¹	--	--	--	--	9.5	12	0.13
12N1	12AH7	Twin triode with low amplification factor	1.35	13	9	--	--	2.8	2.6	3.0
6N1P	6J6	Twin triode with average amplification factor	2.5	30	12	--	--	2.2	0.4	1.6
6N8	6SN7	Twin triode with average amplification factor	1.5	24	16	--	--	3	1.2	4.0
6N9	6SL7	Twin triode with high amplification factor	0.8	72	90	--	--	3.4	3.2	2.8
12R1B	12SR7	Dupdiode-triode with low amplification factor	1.25	14	12	--	--	2.8	2.6	3.0
6R7B	6G7	Dupdiode-triode with high amplification factor	0.8	72	90	--	--	5.0	3.8	1.4

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Conventional Designation	Equivalent	Name	Transcon- ductance	Ampli- fication Factor	Plate Resis- tance	Optimum Plate Load R	Power Out- put	Capacitance		
								In	Out	Plate Grid
			ma/v		kilohms	kilohms	mv	mmfd	mmfd	mmfd
6SL7h	955	HF triode (acorn)	1.2	20	16	--	--	1.0	0.6	1.4
680P	9002	HF triode	1.4	24	17	--	--	1.2	1.1	1.4
6Z44B	6AG7	LF pentode	2.2	--	230	--	--	13.5	7.5	0.06
6P2	6V6	LF tetrode	1.75	--	57	10	20	--	--	--
13P1	13P1M	LF tetrode for low voltage supply	7.0	--	1.5	1.2	4753	15.5	10.5	2.5
30P1	30P1M	LF tetrode	5.0	--	3.6	.62	2003	--	--	--
6K1P	9003	HF pentode in triode connection	2.2	15	7	--	--	--	--	--

Notes: 1. Maximum conversion conductance;

2. Optimum load resistance between plates in push-pull stage;

3. Power of push-pull stage with K less than 10 percent;

4. Bias on 3d grid.

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